

1. A method for a network element to respond to a maximum bitrate request of user equipment of a subscriber, the method comprising:
  - receiving a requested maximum bitrate attribute value;
  - determining if a maximum bitrate limit of the subscriber is equal to or greater than a value of a lowest valued member of a set of available Maximum bitrate values;
  - offering to provide requested communication services in association with an offered maximum bitrate, if the maximum bitrate limit of the subscriber is equal to or greater than the value of the lowest valued member of the set of available maximum bitrate values, the offered maximum bitrate value being equal to a value of a member of an allowable subset of the set of available maximum bitrate values, the allowable subset consisting of members of the set of available maximum bitrates that have values less than or equal to the maximum bitrate limit, and the offered maximum bitrate being equal to a value of a member of the allowable subset that that is greater than or equal to, the lower of the requested maximum bitrate value and the maximum bitrate limit, or has the highest value of the subset; and
  - declining the requested communications service if the maximum bitrate limit of the subscriber is not equal to or greater than the value of lowest valued member of the set of available maximum bitrate values.

2. The method of claim 1 wherein offering to provide the requested communication services in association with the offered maximum bitrate value comprises:
  - setting a temporary working value equal to a lowest value selected from among the requested maximum bitrate attribute value and the maximum bitrate limit;
  - determining whether the temporary working value is equal to a value of a member of the allowable subset of the set of available maximum bitrate values, higher than the values of all the members of the allowable subset of the set of available maximum bitrate values, between a next higher valued member and a next lower valued member of the allowable subset of the set of available maximum bitrate values, or lower than the values of all the members in the set of available maximum bitrate values;

setting the offered maximum bitrate value equal to the temporary working value if the temporary working value is equal to the value of a member of the allowable subset of the set of available maximum bitrate values; and,

offering to provide requested communications services in association with the offered maximum bitrate value.

3. The method of claim 1 wherein offering to provide the requested communication services in association with the offered maximum bitrate value comprises:

setting a temporary working value equal to a lowest value selected from among the requested maximum bitrate attribute value and the maximum bitrate limit;

determining whether the temporary working value is equal to a value of a member of the allowable subset of the set of available maximum bitrate values, higher than the values of all the members of the allowable subset of the set of available maximum bitrate values, between a next higher valued member and a next lower valued member of the allowable subset of the set of available maximum bitrate values, or lower than the values of all the members in the set of available maximum bitrate values;

setting the offered maximum bitrate value equal to a value of the highest valued member of the allowable subset of the set of available maximum bitrate values if the temporary working value is higher than the values of members of the allowable subset of the set of available maximum bitrate values; and,

offering to provide requested communications services at the offered maximum bitrate value.

4. The method of claim 1 wherein offering to provide the requested communication services in association with the offered maximum bitrate value comprises:

setting a temporary working value equal to a lowest value selected from among the requested maximum bitrate attribute value and the maximum bitrate limit;

determining whether the temporary working value is equal to a value of a member of the allowable subset of the set of available maximum bitrate values, higher than the values of all the members of the allowable subset of the set of available maximum bitrate values, between a next higher valued member and a next lower valued member of the allowable subset of the set of available maximum bitrate values, or lower than the values of all the members in the set of available maximum bitrate values;

setting the offered maximum bitrate value equal to a value of a lowest valued member of the allowable subset of the set of available maximum bitrate values if the temporary working value is lower than all the values of members of the set of available maximum bitrate values; and,

offering to provide requested communications services at the offered maximum bitrate value.

5. The method of claim 1 wherein offering to provide the requested communication services in association with the offered maximum bitrate value comprises:

setting a temporary working value equal to a lowest value selected from among the requested maximum bitrate attribute value and the maximum bitrate limit;

determining whether the temporary working value is equal to a value of a member of the allowable subset of the set of available maximum bitrate values, higher than the values of all the members of the allowable subset of the set of available maximum bitrate values, between a next higher valued member and a next lower valued member of the allowable subset of the set of available maximum bitrate values, or lower than the values of all the members in the set of available maximum bitrate values;

setting the offered maximum bitrate value equal to a value of the next higher valued member of the allowable subset of the set of available maximum bitrate values if the temporary working value is between the next higher and a next lower valued members of the allowable subset of the set of available maximum bitrate values and the next higher valued member is less than or equal to the maximum bitrate limit; and

setting the offered maximum bitrate value equal to a value of the next lower member of the allowable subset of the set of available maximum bitrate values if the temporary working value is between the next higher and the next lower valued members and the next higher member is greater than the maximum bitrate limit.

6. A method for a network element to respond to a maximum bitrate request of user equipment of a subscriber, the method comprising:

receiving a requested maximum bitrate attribute value;

determining if a lowest network element supported maximum bitrate value is equal to or less than a maximum bitrate limit associated with the subscriber and if the lowest network element supported maximum bitrate value is equal to or less than the maximum bitrate limit associated with the subscriber;

determining a temporary working value from among the requested maximum bitrate attribute value and the maximum bitrate limit;

determining whether the temporary working is a network element supported value, above all network element supported values, below all network element supported values or between two network element supported values; and,

offering a value in response to the maximum bitrate request based on the determination of whether the temporary working value is above all network element supported values, below all network element supported values or between two network element supported values.

7. The method of claim 6 wherein offering the value in response to the maximum bitrate request based on the determination of whether the temporary working value is above all network element supported values, below all network element supported values or between two network element supported values comprises:

offering the temporary working value in response to the maximum bitrate request if the temporary working value is a network element supported value.

8. The method of claim 6 wherein offering the value in response to the maximum bitrate request based on the determination of whether the temporary working value is above all network element supported values, below all network

element supported values or between two network element supported values comprises:

offering a highest network element supported value in response to the maximum bitrate request if the temporary working value is above all network element supported values.

9. The method of claim 6 wherein offering the value in response to the maximum bitrate request based on the determination of whether the temporary working value is above all network element supported values, below all network element supported values or between two network element supported values comprises:

offering a lowest supported value in response to the maximum bitrate request if the temporary working value is below all network element supported values.

10. The method of claim 6 wherein offering the value in response to the maximum bitrate request based on the determination of whether the temporary working value is above all network element supported values, below all network element supported values or between two network element supported values comprises:

offering a next higher network element supported value if the temporary working value is between a next higher and a next lower network element supported value and the next higher network element supported value is less than or equal to the maximum bitrate limit; and

offering the next lower network element supported value if the temporary working value is between the next higher and the next lower network element supported values and the next higher network element supported value is greater than the maximum bitrate limit.

11. The method of claim 6 wherein offering the value in response to the maximum bitrate request based on the determination of whether the temporary working value is above all network element supported values, below all network

element supported values or between two network element supported values comprises:

offering a next higher network element supported value if the temporary working value is between a next higher and a next lower network element supported value and the next higher network element supported value is less than or equal to the maximum bitrate limit.

12. The method of claim 6 wherein offering the value in response to the maximum bitrate request based on the determination of whether the temporary working value is above all network element supported values, below all network element supported values or between two network element supported values comprises:

offering a next lower network element supported value if the temporary working value is between a next higher and a next lower network element supported value and the next higher network element supported value is greater than the maximum bitrate limit.

13. The method of claim 6 wherein determining if the lowest network element supported maximum bitrate value is below a maximum bitrate limit associated with the subscriber and if the lowest network element supported Maximum bitrate value is below the maximum bitrate limit associated with the subscriber comprises:

determining if an SGSN supported maximum bitrate value is below a maximum bitrate limit associated with the subscriber and if the lowest network element supported maximum bitrate value is below the maximum bitrate limit associated with the subscriber.

14. The method of claim 6 wherein determining if the lowest network element supported maximum bitrate value is below a maximum bitrate limit associated with the subscriber and if the lowest network element supported maximum bitrate value is below the maximum bitrate limit associated with the subscriber comprises:

determining if a GGSN supported maximum bitrate value is below a maximum bitrate limit associated with the subscriber and if the lowest network element supported maximum bitrate value is below the maximum bitrate limit associated with the subscriber.

15. The method of claim 6 wherein determining if the lowest network element supported maximum bitrate value is below a maximum bitrate limit associated with the subscriber and if the lowest network element supported maximum bitrate value is below the maximum bitrate limit associated with the subscriber comprises:

determining if an RNC supported maximum bitrate value is below a maximum bitrate limit associated with the subscriber and if the lowest network element supported maximum bitrate value is below the maximum bitrate limit associated with the subscriber.

16. A method for a network element to respond to a maximum bitrate request of user equipment of a subscriber, the method comprising:

receiving a requested maximum bitrate attribute value;

determining if a lowest network element supported maximum bitrate value is equal to or less than a maximum bitrate limit associated with the subscriber and if the lowest network element supported maximum bitrate value is equal to or less than the maximum bitrate limit associated with the subscriber;

determining a temporary working value from among of the requested maximum bitrate attribute value and the maximum bitrate limit;

determining if the temporary working value is a network element supported value, above all network element supported values, below all network element supported values or between two network element supported values;

offering the temporary working value in response to the maximum bitrate request if the lowest value is a network element supported value;

offering a highest network element supported value in response to the maximum bitrate request if the lowest value is above all network element supported values;

offering a lowest supported value in response to the maximum bitrate request if the lowest value is below all network element supported values;

offering a next higher network element supported value if the lowest value is between the next higher and a next lower network element supported value and the next higher network element supported value is less than or equal to the maximum bitrate limit; and

offering the next lower network element supported value if the temporary working value is between the next higher and the next lower network element supported value and the next highest network element supported value is greater than the maximum bitrate limit.

17. A network element operative to respond to a maximum bitrate request of user equipment of a subscriber, the network element comprising:

means for receiving a requested maximum bitrate attribute value; and  
means for offering to provide communication services in association with a maximum bitrate value selected from a subset of a set of supported maximum bitrate values, the subset including only those elements of the set of maximum bitrate values that are equal to or less than the maximum bitrate limit, the selected value being equal to the value of the subset element that is greater than or equal to, the lower of the requested maximum bitrate value and the maximum bitrate limit, or has the highest value of the subset.

18. The network element of claim 17 wherein the means for offering to provide communication services in association with a maximum bitrate value selected from a subset of the set of maximum bitrate values comprises:

means for determining a temporary working value from among the requested maximum bitrate attribute value and the maximum bitrate limit;

means for determining whether the temporary working value is a network element supported value, above all network element supported values, below all network element supported values or between two network element supported values; and

means for offering to provide communication services in association with a the temporary working value if the lowest value is a network element supported value.

19. The network element of claim 17 wherein the means for offering to provide communication services in association with a maximum bitrate value selected from a subset of the set of maximum bitrate values comprises;

means for determining a temporary working value from among the requested maximum bitrate attribute value and the maximum bitrate limit;

means for determining whether the temporary working value is a network element supported value, above all network element supported values, below all network element supported values or between two network element supported values; and

means for offering to provide communication services in association with a highest network element supported value if the temporary working value is above all network element supported values.

20. The network element of claim 17 wherein the means for offering to provide communication services in association with a maximum bitrate value selected from a subset of the set of maximum bitrate values comprises;

means for determining a temporary working value from among the requested maximum bitrate attribute value and the maximum bitrate limit;

means for determining whether the temporary working value is a network element supported value, above all network element supported values, below all network element supported values or between two network element supported values; and

means for offering to provide communication services in association with a lowest supported value if the temporary working value is below all network element supported values.

21. The network element of claim 17 wherein the means for offering to provide communication services in association with a maximum bitrate value selected from a subset of the set of maximum bitrate values comprises;

means for determining a temporary working value from among the requested maximum bitrate attribute value and the maximum bitrate limit;

means for determining whether the temporary working value is a network element supported value, above all network element supported values, below all network element supported values or between two network element supported values; and

means for offering to provide communication services in association with a next higher network element supported value if the temporary working value is between a next higher and a next lowest network element supported value and the next higher network element supported value is less than or equal to the maximum bitrate limit; and

means for offering to provide communication services in association with the next lower network element supported value if the temporary working value is between the next higher and the next lower network element supported values and the next higher network element supported value is greater than the maximum bitrate limit.

22. The network element of claim 17 wherein the network element comprises an SGSN.

23. The network element of claim 17 wherein the network element comprises a GGSN.

24. The network element of claim 17 wherein the network element comprises an RNC.

26. A network element operative to respond to a maximum bitrate request of user equipment of a subscriber, the network element comprising:

a network interface operative to receive a requested maximum bitrate attribute value directly or indirectly from the user equipment of the subscriber;

a first comparator operative to determine if a lowest network element supported maximum bitrate value is equal to or less than a maximum bitrate limit associated with the subscriber;

a second comparator operative to determine a temporary working value equal to the lowest value selected from among of the requested maximum bitrate attribute value and the maximum bitrate limit;

a bitrate value classifier operative to determining if the temporary working value is a network element supported value, above all network element supported values, below all network element supported values or between two network element supported values;

a bitrate offer generator operative to offer the temporary working value in response to the maximum bitrate request if the temporary working value is a network element supported value, offer a highest network element supported value in response to the maximum bitrate request if the temporary working value is above all network element supported values, offer a lowest supported value in response to the maximum bitrate request if the temporary working value is below all network element supported values, offer a next higher network element supported value if the temporary working value is between the next higher and a next lower network element supported value and the next higher network element supported value is less than or equal to the maximum bitrate limit; and offer the next lower network element supported value if the temporary working value is between the next higher and the next lower network element supported value and the next higher network element supported value is greater than the maximum bitrate limit.

27. The network element of claim 26 wherein the network element comprises an SGSN.

28. The network element of claim 26 wherein the network element comprises a GGSN.

29. The network element of claim 26 wherein the network element comprises an RNC.